IN THE SPECIFICATION

Please amend page 1 by inserting the following heading between the title of the invention and the first paragraph:

"FIELD OF THE INVENTION"

Please amend page 1 by inserting the following heading between the first and second paragraphs:

"BACKGROUND OF THE INVENTION"

Please amend page 2 by inserting the following heading on line 24 :

"BRIEF SUMMARY OF THE INVENTION"

Please amend page 5 by inserting the following heading on line 16:

"BRIEF DESCRIPTION OF THE DRAWINGS

Preferred features of the present invention..."

Please amend page 5 by inserting the following heading on line 28:

"DETAILED DESCRIPTION OF THE INVENTION

Figure 1 illustrates a semiconductor processing system..."

Please amend page 9 by inserting the following language between the "CLAIMS" heading and claim 1:

"I/We claim:"

Please amend pages 3-5 by deleting all of the text on pages 3 and 4 and the text on lines 1-15 of page 5 as follows:

"~~In use the getter material source is activated so as to produce an electric evaporation of the getter material, for example, by an electric arc struck within the chamber causing arc evaporation, which then coats the series of baffles. The gas to be purified (the buffer gas) enters the chamber and flows over the baffles. The contaminate species are selectively removed by reaction with the getter material to form stable compounds. The inert buffer gas~~

~~does not react with the getter material and so is simply cleansed of contaminate species as it passes through the purifier.~~

~~If the buffer gas is a noble gas then very reactive getter materials can be used, for example Ti, Ta, Zr and alloys thereof. However, if the buffer gas is more reactive, for example, N2, then other materials which do not react with N2 need to be used, such as Fe, Cr and alloys thereof. In addition, the getter material may be selected to maximise the pumping/capture of particular contaminant species.~~

~~Once the active layer of getter material has formed a stable compound with the contaminate species on the surface of the baffles and is saturated, a new layer of active material can be deposited simply by evaporating more getter material (for example by striking another arc in the chamber). The new active layer sits on top of the layer of stable compound, thereby permanently removing it from the gas wetted parts of the system.~~

~~Periodic renewal of the active layer could be triggered manually or, more conveniently automatically, for example by a time event or by a suitable sensor either within the chamber or at the outlet of the chamber.~~

~~The arrangement of baffles is desirably configured so as to provide a convoluted path through which the gas must pass, such that there is available as great a surface area as possible of active material with which contaminate species within the buffer gas may react. By careful manipulation of the baffle arrangement, any short cuts in the gas path are minimised thereby encouraging the gas to take the most convoluted route through the device. The surface area and baffle geometry required for optimum purification will depend on pressure and gas throughput.~~

~~In preferred embodiments, the getter material source is a rod (or rods) of the getter material which is surrounded by a collector, for example of cylindrical shape and made of metal which is inert in the gaseous environment to be purified, on to the (or an) inner surface of which the getter material can be deposited from the source.~~

~~In such embodiments, an electric potential is maintained between the source of getter material and the collector so that a metallic plasma is formed. This will generally require an initial high electric potential to form the plasma but a much lower electric potential thereafter. In particular, it is advantageous for there to be created a thermal equilibrium plasma which is maintained at high temperatures. As such, the vaporisation of the getter material is generally effected by arc means.~~

~~The electric potential may be continuous or pulsed. Relatively low values may be used, for example 100V after steady state plasma conditions have been effected.~~

~~The invention is particularly advantageous in that it permits the generation of a fresh film of active getter material in situ. This avoids the need for interrupting the manufacturing process to take a spent purifier off-line for regeneration or replacement of the active getter material as is necessary with purifiers known from the prior art.~~

~~A useful application of the invention is to condition gases entering a process chamber used for the manufacture of semiconductor products, or gases exiting the chamber before these gases enter a vacuum pump used to maintain the desired process environment pressure. The invention may also be applied to remove hydrocarbon impurities from a xenon recirculation system.~~

~~A specific basis of the invention is that it has been surprisingly discovered that these purifiers can be used to good effect to treat semiconductor waste species, for example by disassociation or other reaction, and to be entrapped in the deposited material.~~

~~The purifier will therefore allow the active getter material created therein to disassociate (or otherwise ionise) the species being conveyed to or from the process chamber and thereafter to react it and cause its entrapment. This is generally achieved in a much more efficient manner than with known purification systems.~~

~~The purifier may be embodied in a sorption pump, such a pump comprises a vacuum tight pumping envelope (or housing) having an inlet and outlet, a getter material source located in the envelope and a getter surface on the interior of the collector.~~"

Please insert the following text on page 8 line 10 as follows:

"In use the getter material source is activated so as to produce an electric evaporation of the getter material, for example, by an electric arc struck within the chamber causing arc evaporation, which then coats the series of baffles. The gas to be purified (the buffer gas) enters the chamber and flows over the baffles. The contaminate species are selectively removed by reaction with the getter material to form stable compounds. The inert buffer gas does not react with the getter material and so is simply cleansed of contaminate species as it passes through the purifier.

If the buffer gas is a noble gas then very reactive getter materials can be used, for example Ti, Ta, Zr and alloys thereof. However, if the buffer gas is more reactive, for example, N2, then other materials which do not react with N2 need to be used, such as Fe, Cr and alloys thereof. In addition, the getter material may be selected to maximise the pumping/capture of particular contaminant species.

Once the active layer of getter material has formed a stable compound with the contaminate species on the surface of the baffles and is saturated, a new layer of active material can be deposited simply by evaporating more getter material (for example by striking another arc in the chamber). The new active layer sits on top of the layer of stable compound, thereby permanently removing it from the gas wetted parts of the system.

Periodic renewal of the active layer could be triggered manually or, more conveniently automatically, for example by a time event or by a suitable sensor either within the chamber or at the outlet of the chamber.

The arrangement of baffles is desirably configured so as to provide a convoluted path through which the gas must pass, such that there is available as great a surface area as possible of active material with which contaminate species within the buffer gas may react. By careful manipulation of the baffle arrangement, any short cuts in the gas path are minimised thereby encouraging the gas to take the most convoluted route through the device. The surface area and baffle geometry required for optimum purification will depend on pressure and gas throughput.

In preferred embodiments, the getter material source is a rod (or rods) of the getter material which is surrounded by a collector, for example of cylindrical shape and made of metal which is inert in the gaseous environment to be purified, on to the (or an) inner surface of which the getter material can be deposited from the source.

In such embodiments, an electric potential is maintained between the source of getter material and the collector so that a metallic plasma is formed. This will- generally require an initial high electric potential to form the plasma but a much lower electric potential thereafter. In particular, it is advantageous for there to be created a thermal equilibrium plasma which is maintained at high temperatures. As such, the vaporisation of the getter material is generally effected by arc means.

The electric potential may be continuous or pulsed. Relatively low values may be used, for example 100V after steady state plasma conditions have been effected.

The invention is particularly advantageous in that it permits the generation of a fresh film of active getter material in situ. This avoids the need for interrupting the manufacturing process to take a spent purifier off-line for regeneration or replacement of the active getter material as is necessary with purifiers known from the prior art.

A useful application of the invention is to condition gases entering a process chamber used for the manufacture of semiconductor products, or gases exiting the chamber before these gases enter a vacuum pump used to maintain the desired process environment pressure. The invention may also be applied to remove hydrocarbon impurities from a xenon recirculation system.

A specific basis of the invention is that it has been surprisingly discovered that these purifiers can be used to good effect to treat semiconductor waste species, for example by disassociation or other reaction, and to be entrapped in the deposited material.

The purifier will therefore allow the active getter material created therein to disassociate (or otherwise ionise) the species being conveyed to or from the process chamber and thereafter to

react it and cause its entrapment. This is generally achieved in a much more efficient manner than with known purification systems.

The purifier may be embodied in a sorption pump, such a pump comprises a vacuum tight pumping envelope (or housing) having an inlet and outlet, a getter material source located in the envelope and a getter surface on the interior of the collector."